

ABSTRACT

An atmospheric water harvester extracts water from high relative humidity air. The temperature of the surface of a condensation member is lowered in the presence of moist air to promote condensation of water vapor on its surface, and the water so obtained by condensation is collected. The atmospheric water harvester includes a photovoltaic member that generates electricity to power the refrigeration of the condensation member. At least as much electrical power is produced as is used to condense the water vapor so that no additional sources of electrical power are required. Each atmospheric water harvester (or array of harvesters) is rapidly installed and then operated in an unattended state for considerable periods of time. Arrays of autonomous atmospheric water harvesters can be installed as free-standing units or as roofs on either new or existing buildings.